General

Guideline Title

Early detection of cancers. In: Guidelines for preventive activities in general practice, 8th edition.

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Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

The levels of evidence (I-IV, Practice Point) and grades of recommendations (A-D) are defined at the end of the "Major Recommendations" field.

Skin Cancer

General population screening for melanoma or non-melanoma skin cancer (NMSC) is not recommended as the prerequisite (evidence to show this reduces death) is not available (Australian Cancer Network Melanoma Guidelines Revision Working Party, 2008). Providing education that raises awareness of early detection of skin cancer or its prevention is recommended.

Assess people opportunistically or when the patient is concerned (about skin lesions or their skin cancer risk) and plan appropriate strategies for their level of risk. People generally should be encouraged to become familiar with their skin, including skin not normally exposed to the sun, and be alert for new or changing skin lesions, particularly people aged over 40 years.

Melanocytic Skin Cancer

Skin self-examination should be encouraged for high-risk individuals every 3 months (B).

All people, particularly children, should be advised to adopt protective measures when ultraviolet (UV) levels are 3 and above (C). Sunscreen may prevent melanoma in adults, and generally minimising sun exposure may reduce the risk of melanoma (Green et al. 2011; Gefeller & Pfahlberg, 2002; Marks 1999; Azizi et al., 2000; English, Milne, & Simpson, 2005; Goldenhersh & Koslowsky, 2011).

Melanocytic Skin Cancer: Identifying Risk

Who Is at Risk?	What Should Be Done?	How Often?	References
Average Risk Light skin without past history of risk	Primary preventive advice (III,B)	Opportunistically	Australian Cancer Network Melanoma Guidelines Revision Working Party, 2008
Increased Risk (risk 2–5 times normal) • Family history of melanoma in first-degree relative • Fair complexion, a tendency to burn rather than tan, the presence of freckles, light eye colour, light or red hair colour • Age over 30 years (over 50 years most at risk) • Presence of solar lentigines • Past history of non-melanoma skin cancer (NMSC) (age <40 years higher risk) • People with childhood high levels of ultraviolet (UV) exposure and episodes of sunburn in childhood	Primary preventive advice and examination of skin (III,B)	Opportunistically	Australian Cancer Network Melanoma Guidelines Revision Working Party, 2008; MacKie, McHenry, & Hole, 1993
High Risk (risk >6 times normal) • Those with multiple atypical or dysplastic naevi and who have a history of melanoma in themselves or in a first-degree relative	Preventive advice, examination of skin (with or without photography) and advice on self-examination (III,C)	Every 3–12 months (Practice Point)	New Zealand Dermatological Society, 2004

Melanocytic Skin Cancer: Preventive Interventions

Intervention	Technique	References
Sun protection advice	All people (especially children aged ≤10 years) should be advised to adopt protective measures when ultraviolet (UV) levels are 3 and above. These measures include use of shade; broad-brimmed, bucket or legionnaire-style hats; protective clothing; sunglasses; and sun protection factor (SPF) 30+ sunscreens, (which need to be reapplied every 2 hours). Times when the UV is forecast to reach 3 and above and sun protection is recommended are available from the Bureau of Meteorology. 'SunSmart' applications for smart phones or desktops provide real-time electronic alerts on recommended sun protection times, maximum UV levels, and information on recommended exposure for vitamin D. They are adjustable to specific geographic locations around Australia at www.sunsmart.com.au .	Australian Cancer Network Melanoma Guidelines Revision Working Party, 2008; Baade et al., 2005
Skin examination	Before examining the skin, it is worth asking about any new, or changes in old, lesions. Characteristics of suspicious naevi include asymmetry, border irregularity, variable colour (including a surrounding coloured halo) and diameter >6 mm elevation (mnemonic 'ABCD'). Naevi that stand out from the others ('ugly duckling') are also suspicious. Nodular melanomas (with a much worse prognosis) are characteristically elevated, firm, growing over the past month (mnemonic 'EFG').	Australian Cancer Network Melanoma Guidelines Revision Working Party, 2008; Kelly et al., 2003; Scope et al., 2008; Zalaudek et al., 2008

Intervention	Technique	References
	Excision biopsy or referral should be considered. Examination under surface magnification (x 10) (after appropriate training) can assist in diagnosis. Photography aids in monitoring skin lesions by detecting changes over time, and may reduce the excision rate of benign lesions (Hanrahan et al., 2002; English, Del Mar, & Burton, 2004). Full body skin examination has been shown in general and dermatology practice, with and without dermatoscopy, to take on average 2–3 minutes (Smith, 2003).	
Self-examination	People should be advised on the specific changes that suggest melanoma, be encouraged to become familiar with their skin, and be alert for new or changing skin lesions. High-risk individuals should be encouraged to perform self-examination, especially of naevi. Those at high risk can benefit from use of self-photography.	MacKie, McHenry, & Hole, 1993; Kanzler & Mraz-Gernhard, 2001

NMSC (Basal Cell and Squamous Cell Carcinoma)

High-risk individuals from age 40 years should be examined for NMSC opportunistically (B). Skin self-examination should be encouraged for high-risk individuals (B). The most common preventable cause of NMSC is UV exposure.

All people, especially children, should be advised to use protective measures when UV levels are 3 or above (A). Use of sunscreen helps prevent squamous cell skin cancer (B) (Green et al., 1999).

NMSC: Identifying Risk

Who Is at Risk?	What Should Be Done?	How Often?	References
Average Risk • Those with fair to lighter than olive skin colour, under age 40 years without any risk factors	Preventive advice (III,B)	Opportunistically	National Health and Medical Research Council (NHMRC), 2002
Increased Risk • Fair complexion, a tendency to burn rather than tan, the presence of freckles, light eye colour, light or red hair colour • Family history of skin cancer • Age over 40 years • Male sex • Presence of multiple solar keratosis • People with high levels of ultraviolet (UV) exposure such as outdoor workers	Preventive advice, education to present if changes occur in a skin lesion, and examination of skin (III,B)	Opportunistically	NHMRC, 2002
High Risk • Fair complexion, a tendency to burn rather than tan, the presence of freckles, light eye colour, light or red hair colour • Age over 40 years • Previous non-melanoma skin	Preventive advice, education to present if changes occur in a skin lesion, examination of skin, and advice on self-examination (III,B)	If initial opportunistic assessment indicates the need. Every 12 months, or when patient develops new skin lesion. (Practice Point)	Czarnecki et al., 1994

Who Is at Risk?	What Should Be Done?	How Often?	References
cancer (NMSC) (up to 60% grow another in 3 years) • Past exposure to arsenic • Immunosuppressed (e.g., post-renal or heart transplant)			

NMSC: Preventive Interventions

Intervention	Technique	References
Sun protection advice	All people (particularly children) should be advised to adopt protective measures when ultraviolet (UV) levels are 3 or above, especially between the hours of 10 am and 3 pm. These measures include use of shade; broad-brimmed, bucket or legionnaire-style hats; protective clothing; sunglasses; and sun protection factor (SPF) 30+ sunscreens (which need to be reapplied every 2 hours).	Canadian Task Force on Periodic Health Examination (CTFPHE), 2000
Skin examination	Skin examination should be preceded by enquiry for relevant history (e.g., of lesions of concern to patient or recent appearance or change in any lesions in the past few months or years). Examination should identify skin lumps, ulcers or scaly patches, particularly growing, scarred or inflamed lesions. Incision, shave or excision biopsy for histology (or referral) should be considered. There are many suitable means to treat non-melanoma skin cancer (NMSC); these include the use of surgery, cryotherapy, curettage and cytotoxic and immune modulating creams. Examination under magnification can assist in diagnosis. Full body skin examination has been shown to take on average 2–3 minutes in general and dermatology practice, with and without dermatoscopy.	English, Del Mar, & Burton, 2004; Zalaudek et al., 2008
Self-examination	People should be advised to be alert for skin lesion changes.	NHMRC, 2002

Cervical Cancer

Pap test screening is recommended every 2 years for women who have ever had sex and have an intact cervix, commencing from age 18 to 20 years (or up to 2 years after first having sexual intercourse, whichever is later). These recommendations are under review because evidence is challenging some of the following recommendations (Sasieni, Castanon, & Cuzic, 2009), and may change in the National Cervical Screening Program renewal. Currently, in 2012, this is in a consultation process. Go to www.msac.gov.au/internet/msac/publishing.nsf/Content .

Australia has the lowest mortality rate and the second lowest incidence of cervical cancer in the world. The success of the cervical screening program is dependent upon the recruitment of women: 85% of women in Australia who develop cervical cancer have either not had a Pap test or been inadequately screened in the past 10 years. Women aged >50 years still represent an underscreened group. The introduction of the human papillomavirus (HPV) vaccine as part of the National Immunisation Program (NIP) 2007 may reduce the future incidence of cervical cancer, but is not a substitute for a continuing screening program.

Cervical Cancer: Identifying Risk

Who Is at Risk?	What Should Be Done?	How Often?	References
Average Risk • All women who have ever been sexually active	Pap test (III–2,B)	Women who have ever had sex and still have an intact cervix should undergo Pap test screening. Routine screening with Pap tests should be carried out every 2 years for women who have no symptoms or history suggestive of cervical pathology. (Practice Point)	NHMRC, 2005

Who Is at Risk?	What Should Be Done?	How Often?	References
		All women who have ever been sexually active should start having Pap tests between age 18 and 20 years, or 1–2 years after first having sexual intercourse, whichever is later. Pap tests may cease at age 70 years for women who have had 2 normal Pap tests within the last 5 years. Women over age 70 years who have never had a Pap test, or who request a Pap test, should be screened. Women with female sex partners are also at risk of developing cervical cancer and should be screened as above.	
	Human papillomavirus (HPV) vaccination (B)	For maximal effect the vaccination should be given prior to the onset of sexual activity. It has no modifying effect on already acquired HPV infections. It is available as part of the National Immunisation Program (NIP) for girls in year 7.	NHMRC, 2008; Skinner et al., 2008

Increased Risk
• Persistent infection with high-risk HPV types is necessary for the development of cervical cancer. Other risk factors include:
  • Immunosuppression
  • Cigarette smoking
  • Use of combined oral contraception >5 years
	Pap test (Practice Point)	It is important to ensure the patient always receives the results of her test.
		
		Low-grade squamous intraepithelial lesions (LSIL)
		• A woman with a Pap test report of possible/definite LSIL should have a repeat Pap test in 12 months (Practice Point). If the repeat test at 12 months shows LSIL (definite or possible) the woman should be referred for colposcopy.
		• A woman aged 30 years or more with a Pap test report of LSIL, without a history of negative smears in the preceding 2–3 years, should be offered either colposcopy or a repeat Pap smear at 6 months (Practice Point).
		
		High-grade squamous intraepithelial lesion (HSIL)
		• Refer for colposcopic assessment and targeted biopsy where indicated.
		
		Glandular abnormality or adenocarcinoma
		• Refer for colposcopy by an experienced gynaecologist or gynaecological oncologist.
		• If the woman is symptomatic or if she has a clinically abnormal cervix, referral for colposcopy is recommended.
			EUROGIN, 2003; Monsonego et al., 2004

Tests to Detect Cervical Cancer Risk

Intervention	Technique	References
Pap test	A sample of the ectocervix – using an extended tip spatula – then the endocervix, using a cytobrush, provides the best method of sampling and can be used in all age groups of women. (The cytobrush is not recommended for use during pregnancy.) The cervical broom can be used on its own in premenopausal women if it is possible to sample from both sides of the transformation zone. In postmenopausal women the transformation zone tends to be higher in the endocervical canal. The cervical cells should be placed onto a glass slide and fixed with spray within 5 seconds. If the smear is reported as technically unsatisfactory, it should not be repeated before 6 weeks. In postmenopausal women with atrophic changes, it may be necessary to use vaginal oestrogen for 14–21 days prior to the test. See also the NGC summary of the Royal	Buntinx & Brouwers, 1996

Intervention	Technique	References
	Australian College of General Practitioners (RACGP) guideline Screening tests of unproven benefit regarding evidence related to bimanual vaginal examination.	
Human papillomavirus (HPV) testing	As a primary screening tool: • Current national guidelines do not support the use of HPV testing as a primary screening tool for cervical cancer.	NHMRC, 2005; Mayrand et al., 2007; Koliopoulos et al., 2007
	In triage of low-grade squamous intraepithelial lesions (LSIL): • The use of HPV testing in the triage of LSIL remains under investigation and is not currently recommended by the National Cervical Cancer Screening guidelines. In follow-up of high-grade squamous intraepithelial lesions (HSIL): • In women treated for HSIL, cervical cytology plus HPV testing should be performed 12 months post-treatment and annually thereafter until both tests are negative on 2 consecutive occasions, at which point women can return to the routine cervical screening interval	NHMRC, 2005; Safaeian et al., 2007; Arbyn et al., 2004; Arbyn et al., 2005
Liquid-based cytology	Liquid-based cytology can be used as an additional test to the conventional smear but not as a substitute. Its addition may be useful when repeating an unsatisfactory smear, or added if requested by the woman.	Davey et al., 2006; Ronco et al., 2007

Breast Cancer

It is recommended that women aged 50 to 69 years attend the BreastScreen Australia Program every 2 years for screening mammograms (A).

Women should be aware that a recommendation for clinical breast examination is not possible because there is insufficient evidence that this offers benefits to women of any age (C).

However, it is recommended that all women, whether or not they undergo mammographic screening, are aware of how their breasts normally look and feel, and promptly report any new or unusual changes (such as a lump, nipple changes, nipple discharge, change in skin colour, or pain in a breast) to their general practitioner (GP) (National Breast and Ovarian Cancer Centre [NBOCC], 2009).

Breast Cancer: Identifying Risk

Who Is at Risk?	What Should Be Done?	How Often?	References
Average or Only Slightly Higher* Risk (>95% of women) • No confirmed family history of breast cancer • One first-degree relative diagnosed with breast cancer at age 50 years or older • One second-degree relative diagnosed with breast cancer at any age • Two second-degree relatives on the same side of the family diagnosed with breast cancer at age 50 years or older • Two first- or second-degree relatives diagnosed with breast cancer, at age 50 years or older, but on different sides	Clarify risk at www.nbocc.org.au/fraboc. Mammogram Breast awareness (I,A)	Every 2 years from age 50–69 years‡ Regularly (Practice Point)	NBOCC, 2010

Who Is at Risk?	What Should Be Done?	How Often?	References
(i.e. on each side) of the family As a group, risk of breast cancer up to age 75 years is between 1:11 and 1:8.			
Moderately Increased Risk† (<4% of the female population) • One first-degree relative diagnosed with breast cancer before the age of 50 (without the additional features of the potentially high-risk group) • Two first-degree relatives, on the same side of the family, diagnosed with breast cancer (without the additional features of the potentially high-risk group) • Two second-degree relatives, on the same side of the family, diagnosed with breast cancer, at least 1 before age 50 years (without the additional features of the potentially high-risk group) As a group, the relative risk of breast cancer up to age 75 years is between 1:8 and 1:4.	Clarify risk at www.nbocc.org.au/fraboc . Mammogram (III,C) Breast awareness Consider referral to or consultation with a family cancer clinic for further assessment and management plan.	At least every 2 years from age 50–69 years‡ Annual mammograms from age 40 may be recommended if the woman has a first-degree relative <age 50 years diagnosed with breast cancer. (Practice Point)	NBOCC, 2010

Potentially High Risk§
 	
(<1% of the female population)
 	
• Women who are at potentially high risk of ovarian cancer
• Two first- or second-degree relatives on one side of the family diagnosed with breast or ovarian cancer plus 1 or more of the following features on the same side of the family:
  • Additional relative(s) with breast or ovarian cancer
  • Breast cancer diagnosed before age 40 years
  • Bilateral breast cancer
  • Breast and ovarian cancer in the same woman
  • Ashkenazi Jewish ancestry
  • Breast cancer in a male relative
• One first- or second-degree relative diagnosed with breast cancer at age 45 years or younger plus another first- or second-degree relative on the same side of the family with sarcoma (bone/soft tissue) at age 45 years or younger
• Member of a family in which the presence of a high-risk breast cancer gene mutation has been established
	Clarify risk at www.nbocc.org.au/fraboc .
	
	Advise referral to a cancer specialist or family cancer clinic for risk assessment, possible genetic testing and management plan.
	
	Ongoing surveillance strategies may include regular clinical breast examination, breast imaging with mammography, magnetic resonance imaging (MRI) or ultrasound and consideration of ovarian cancer risk. (III,C)
		Individualised surveillance program. This may include regular clinical breast examination, and annual breast imaging with mammography, MRI or ultrasound. (Practice Point)	NBOCC, 2010

Who Is at Risk?	What Should Be Done?	How Often?	References
See the National Breast and Ovarian Cancer Centre guidelines at www.nbocc.org.au/fraboc for further information. As a group, risk of breast cancer up to age 75 years is between 1:2 and 1:4.			

*About 1.5 times the population average.

†About 1.5 to 3 times the population average.

‡Population-based screening using mammography is the best early detection method available for reducing deaths from breast cancer (Nelson et al., 2009). Evidence of the benefit is strongest for women aged 50 to 69 years. For all women there is a chance that mammography will either miss breast cancer (false negative) or detect a change not caused by breast cancer (false positive). The chance of a false negative or false positive result is higher in younger women because their breast tissue is denser, making it more difficult to detect changes.

Women aged 40 to 49 years are eligible for free 2-yearly screening mammograms through BreastScreen Australia, although they are not targeted by the program. In deciding whether to attend for screening mammography, women in this age group should balance the potential benefits and downsides for them, considering the evidence that screening mammography is less effective for women in this age group than for older women. Generally, breasts become less dense as women get older, particularly after menopause, which is why mammograms become more effective as women get closer to age 50 years. Mammographic screening is not recommended for women aged <40 years because the reduced accuracy of mammography produces a high risk of false positive and false negative results (NBOCC, 2009).

Women aged ≥70 years are eligible for free 2-yearly screening mammograms through BreastScreen Australia, although they are not targeted by the program because there is limited evidence available from randomised control trials about the benefits of screening them (Australian Government Department of Health and Ageing [AGDHA], 2009). Women in this age group should balance the potential benefits and downsides of screening, considering their general health and whether they have other diseases or conditions (NBOCC, 2009).

§More than 3 times the population average. Individual risk may be higher or lower if genetic test results are known.

Breast Cancer: Clinical Breast Examination and Breast Awareness

Other Tests	Comments	References
Clinical breast examination	Clinical trials in Russia and China showed that population-based screening using clinical breast examination did not reduce the number of deaths from breast cancer. New randomised controlled trials (RCTs) are underway in India and Egypt.	NBOCC, 2009
Breast awareness	In Australia, despite their fully implemented mammographic screening program, most breast cancers are diagnosed after the woman develops symptoms, or by her doctor. If women are aware of the normal look and feel of their breasts, and report unusual symptoms, breast cancer might be detected earlier. In the past, regular 'breast self-examination' (women examining their own breasts) was promoted and taught. However, this is not supported by evidence of the size or stage of tumours at diagnosis or in the number of deaths from breast cancer. Therefore, teaching women breast self-examination is no longer recommended. (I,B)	NBOCC, 2009

Ovarian Cancer

Routinely screening for ovarian cancer using blood tests for cancer antigen (CA) 125, or transabdominal or transvaginal ultrasound provides no benefit. Three large trials have been started: the United Kingdom Collaborative Trial of Ovarian Cancer Screening will report in 2014; a European equivalent was commenced in 2005 and has not reported yet; and the United States Prostate Lung Colorectal and Ovarian trial reported in 2011 with no benefits from CA125 or transvaginal ultrasound screening (Buys et al., 2011).

Ovarian Cancer: Identifying Risk

Who Is at Risk?	What Should Be Done?	How Often?	References
Lower Risk • Those who have used the oral contraception, or carried a pregnancy to term (risk of about half the population average)	No screening		Whittemore, Harris, & Itnyre, 1992
Higher Risk • Family history of ovarian cancer, especially first-degree relatives and more than 1 relative (risk of about 3 times the population average)	No screening Consider increased frequency of screening for breast and colorectal cancer (CRC).		Kerlikowske, Brown, & Grady, 1992
• Presence of the breast cancer susceptibility gene 1 (BRCA1) or breast cancer susceptibility gene 2 (BRCA2)			Ford & Easton, 1995

Oral Cancer

There is insufficient evidence to recommend screening by visual inspection or by other screening methods (Brocklehurst et al., 2010; National Cancer Institute, "Oral cancer screening," 2012).

Oral Cancer: Identifying Risk

Who Is at Risk?	What Should Be Done?	How Often?	References
Average Risk	Education regarding prevention (Practice Point)	Every 2 years (Practice Point)	Smith et al., 2011
Increased Risk • Smokers aged >50 years, heavy drinkers, patients chewing tobacco or areca/betel nut • Patients exposed to excessive amounts of sunlight (at risk of lip cancer)	Opportunistic examination of the mouth and lips (Practice Point)	Every 12 months (Practice Point)	Smith et al., 2011; US Preventive Services Task Force (USPSTF), 2004

Oral Cancer: Preventive Care

Intervention	Technique	References
Education	All patients should be advised about the hazards of smoking or chewing tobacco, excessive alcohol consumption and sunlight exposure.	Smith et al., 2011
Oral examination	1. Examination of the extra oral areas – neck, lips and facial areas – looking for lumps and swellings 2. Inspection of the oral cavity – buccal mucosa, gums, tongue (lateral borders and dorsum), floor of mouth and palate (looking for white or red patches, ulceration or induration)	Sugerman & Savage, 1999

Colorectal Cancer (CRC) (Bowel Cancer)

Organised screening by faecal occult blood test (FOBT) is recommended for the asymptomatic average risk population from age 50 years every 2 years (A) until age 75 years with repeated negative findings (Australian Cancer Network Colorectal Cancer Guidelines Revision Committee, 2005; Zauber et al., 2009). Increased risk is determined by family history; this should include determining the number of relatives affected by CRC, side

of family and age at diagnosis. Digital rectal examination (DRE) is not recommended as a screening tool (D), (but is important in evaluating patients who present with symptoms such as rectal bleeding).

A GP recommendation can positively influence participation in bowel cancer screening using FOBT (Cole et al., 2002; Salkeld et al., 2003; Klabunde et al., 2007). Regular FOBT can reduce CRC mortality by up to 16% (Hewitson et al., 2007).

CRC: Identifying Risk

Who Is at Risk?	What Should Be Done?	How Often?	References
Category 1: Average or Slightly Increased Risk Asymptomatic people with: • No personal history of bowel cancer, colorectal adenomas or ulcerative colitis and no confirmed family history of colorectal cancer (CRC) or • One first- or second-degree relative with CRC diagnosed at age 55 years or older	Faecal occult blood test (FOBT) (I,A)	Every 2 years from age 50 years (Practice Point)	CTFPHE, 2000; Australian Cancer Network Colorectal Cancer Guidelines Revision Committee, 2005; Hewitson et al., 2007; National Cancer Institute, "Colorectal," 2012
Category 2: Moderately Increased Risk (1–2% of the population) Asymptomatic people with: • One first-degree relative with CRC diagnosed before age 55 years or • Two first-degree or 1 first- and one second-degree relative/s on the same side of the family with CRC diagnosed at any age (without potentially high-risk features as in Category 3)	Colonoscopy Sigmoidoscopy plus double-contrast barium enema or computed tomography (CT) colonography (performed by an experienced operator) acceptable if colonoscopy is contraindicated.	Every 5 years from age 50 years, or at an age 10 years younger than the age of first diagnosis of CRC in the family, whichever comes first (Practice Point)	Australian Cancer Network Colorectal Cancer Guidelines Revision Committee, 2005; Australian Cancer Network, 2002; National Cancer Institute, "Genetics," 2012
	Consider offering FOBT. (III,B)	In intervening years	
Category 3: High Risk (Relative Risk of ~4–20) (<1% of the population)* Asymptomatic people with: • Three or more first- or second-degree relatives on the same side of the family diagnosed with CRC (suspected Lynch syndrome, also known as hereditary non-polyposis CRC or hereditary non-polyposis colon cancer [HNPCC]) or other Lynch syndrome-related cancers† or • Two or more first- or second-degree relatives on the same side of the family	Refer for genetic screening of affected relatives. Refer to bowel cancer specialist to plan appropriate surveillance.(III,B) Familial adenomatous polyposis (FAP): flexible sigmoidoscopy or Colonoscopy in attenuated FAP‡	Those at risk for: • FAP (no APC mutation defined): every 12 months from age 12–15 years to age 30–35 years and every 3 years after age 35 years¶ • Lynch syndrome: 1–2 yearly from age 25 years or 5 years earlier than the youngest affected member of the family (whichever is earliest). Aspirin 100	Australian Cancer Network, 2002; National Cancer Institute, "Genetics," 2012

Who Is at Risk?	What Should Be Done?	How Often?	References
diagnosed with CRC, including any of the following high-risk features: • Multiple CRC in the 1 person • CRC before age 50 years • A family member who has or had Lynch syndrome-related cancer or • At least one first- or second-degree relative with CRC, with a large number of adenomas throughout the large bowel (suspected familial adenomatous polyposis: FAP) or		mg/day is effective prophylaxis	
• Somebody in the family in whom the presence of a high-risk mutation in the adenomatous polyposis coli (APC) or 1 of the mismatch repair genes has been identified	HNPCC: • Colonoscopy	In intervening years	
Members of proven FAP§ and Lynch syndrome families who are shown not to carry the family mutation are no longer at high risk and revert to the average-risk group and still require population-based screening.	Consider offering FOBT. (III,B)	(Practice Point)	

*Age of starting screening varies in high-risk groups: age 25 years for those with Lynch syndrome or 5 years earlier than the earliest age of onset in the family.

†Lynch syndrome criteria can be found at www.ncbi.nlm.nih.gov/pubmed/14970275 (Umar et al., 2004).

‡Attenuated FAP is characterised by a significant risk for colon cancer but fewer colonic polyps (average of 30), more proximally located polyps, and diagnosis of colon cancer at a later age. Patients with 10 to 100 adenomas have an attenuated form of FAP, which can be due to APC mutation (dominantly inherited) or MUTYH bi-allelic mutations (recessive). In each case the CRC risk is high.

§FAP is an autosomal disorder caused by a germline mutation in the APC gene. APC mutation, as manifested by the development of CRC, approaches 100% by the age of 50 years in untreated subjects. FAP, however, accounts for less than 1% of all CRC cases. HNPCC, also known as Lynch syndrome, is due to an inherited mutation (abnormality) in a gene that normally repairs the body's deoxyribonucleic acid (DNA). Both disorders have an autosomal dominant mode of transmission within families and carry a very high risk for cancer. As the HNPCC gene mutation is present in every cell in the body, other organs can also develop cancer. In untreated FAP, mutation carriers have a lifetime risk for CRC close to 100%. In HNPCC, their risk for colorectal or other syndrome cancers is 70% to 90% (Australian Cancer Network Colorectal Cancer Guidelines Revision Committee, 2005). Aspirin at 600 mg/day reduced Lynch syndrome cancer incidence by 50% to 68% in the CAPP2 trial (Burn et al., 2011). Follow-up of the low-dose aspirin RCTs (Rothwell et al., 2011; Rothwell et al., 2010) suggests low-dose aspirin (100 mg/day) also reduces cancer incidence by half. A dose-response RCT in Lynch syndrome is open for recruitment at www.CAPP3.org .

¶Bi-annual (6-monthly) or annual sigmoidoscopy for APC gene carriers of diagnosed FAP (colonoscopy in attenuated FAP).

Test to Detect CRC

Intervention	Technique	References

Intervention	Technique	References
Faecal occult blood test (FOBT) screening	Two main types of FOBT are available: guaiac and faecal immunochemical tests. Immunochemical tests are preferred as they have greater sensitivity and higher uptake (A) (van Dam, Kuipers, & van Leerdama, 2010). Two or three serial stools should be tested, depending on the type and brand of test being used. Follow the manufacturer's instructions. It is essential that any positive FOBT (including just one of the samples) is appropriately investigated by diagnostic tests (such people being at least 12 times more likely to have colorectal cancer [CRC] than those with a negative test). With guaiac tests, even if a subject fails to follow dietary restrictions, it is dangerous to assume that a positive result is a result of dietary non-compliance.	van Dam, Kuipers, & van Leerdama, 2010; Holden et al., 2010

Testicular Cancer

There is insufficient evidence to routinely screen for testicular cancer using clinical or self-examination (USPSTF, 2011; Elford, 1994). Those performing testicular self-examination are not more likely to detect early-stage tumours or have better survival than those who do not (C).

Testicular Cancer: Identifying Risk

Who Is at Risk?	What Should Be Done?	How Often?	References
High Risk • Those with a history of cryptorchidism (relative risk above average of 3.5–17), orchidopexy, testicular atrophy, or previous testicular cancer (relative risk 25–28)	Testicular examination (Practice Point)	Opportunistically (Practice Point)	USPSTF, 2011; Dieckmann & Pichlmeier, 2004; National Cancer Institute, "Testicular cancer screening," 2012

Prostate Cancer

Routine screening for prostate cancer with digital rectal examination (DRE), prostate specific antigen (PSA) or transabdominal ultrasound is not recommended (USPSTF, 2008; Lim & Sherin, 2008; Ilic et al., 2006). DRE has poor ability to detect prostate disease (Coley et al., 1997). Yet some cancers missed by PSA testing alone are detected by DRE (Coley et al., 1997), which is why those recommending screening advocate DRE as well as PSA.

The recommendation is contentious. Two large RCTs (Andriole et al., 2009; Schroder et al., 2009) found none or marginal benefit. However, analysis of the data from one centre contributing to one of these (Hugosson et al., 2010) showed an increased survival from prostate cancer (but not mortality from any cause) beyond 10 years. Two recent systematic reviews concluded that screening is not effective (Ilic et al., 2011; Djulbegovic et al., 2010).

Even if one were to conclude there was a survival benefit (from current or future trial data), this survival would need to be balanced against the harms of cancer overdetection and treatment.

GPs need not raise this issue, but if men ask about prostate screening they need to be fully informed of the potential benefits, risks and uncertainties of prostate cancer testing (Djulbegovic et al., 2010). When a patient chooses screening, both PSA and DRE should be performed.

Prostate Cancer: Identifying Risk

Who Is at Risk?	What Should Be Done?	How Often?	References
Average Risk • The risk of developing prostate cancer increases with age and positive family history. However, because prostate cancer is normally slow growing, men older than age 75 years or with a life expectancy of less than 10 years are at reduced threat of dying from a diagnosis of prostate cancer. • Men with uncomplicated lower urinary tract symptoms (LUTS) do not appear to have an increased risk of prostate cancer. The most common	Respond to requests for screening by informing patients of risks and benefits of screening. (I,A)	On demand (Practice Point)	NHMRC, 1997; Bruner et al., 2003; Johns & Houlston, 2003

Who Is at Risk?	What Should Be Done?	How Often?	References
cause of LUTS is benign prostate enlargement. Early prostate cancer often does not have symptoms.			
High Risk • Men with one or more first-degree relatives diagnosed under age 65 years • Men with a first-degree relative with familial breast cancer (BRCA1 or BRCA2)	Respond to requests for screening by informing patients of risks and benefits of screening. (Practice Point)	On demand (Practice Point)	Bruner et al., 2003; Johns & Houlston, 2003; Zeegers, Jellema, & Ostrer, 2003

Screening for Prostate Cancer

Not Recommended	Justification	References
Prostate specific antigen (PSA) screening	The most common adverse effect of radical prostatectomy is erectile dysfunction, which affects most men (it is less common in younger men, those with a lower PSA, and when nerve-sparing surgical techniques are used).	USPSTF, 2008; Lim & Sherin, 2008; Ilic et al., 2006; Ilic et al., 2011; Alemozaffar et al., 2011
	Other complications are common as well, including urinary incontinence (which is very common in the months after treatment, but returns to normal in 75%–90% men after 2 years, depending on treatment type), and to a lesser extent, urinary irritation and bowel symptoms. General feelings of 'vitality' are lost in about 10% of men.	Sanda et al., 2008
	Both suicide and cardiovascular disease (CVD) increase enormously (8 and 11 times more, respectively) in the week after men are given their diagnosis of prostate cancer.	Fall et al., 2009
	Even diagnostic procedures following positive screening are harmful, with Australian data showing that the risk of life-threatening sepsis needing intensive care admission is not uncommon after biopsy.	Bowden, Roberts, & Collignon, 2008
	Despite large trials, their meta-analysis suggests that prostate cancer screening does not save lives.	Ilic et al., 2011; Djulbegovic et al., 2010

Definitions:

Levels of Evidence

Level	Explanation
I	Evidence obtained from a systematic review of level II studies
II	Evidence obtained from a randomised controlled trial (RCT)
III–1	Evidence obtained from a pseudo-randomised controlled trial (i.e., alternate allocation or some other method)
III–2	Evidence obtained from a comparative study with concurrent controls: • Non-randomised, experimental trial • Cohort study • Case–control study • Interrupted time series with a control group
III–3	Evidence obtained from a comparative study without concurrent controls: • Historical control study • Two or more single arm study

Level	Explanation
III	• Interrupted time series without a parallel control group
IV	Case series with either post-test or pre-test/post-test outcomes
Practice Point	Opinions of respected authorities, based on clinical experience, descriptive studies or reports of expert committees

Grades of Recommendations

Grade	Explanation
A	Body of evidence can be trusted to guide practice
B	Body of evidence can be trusted to guide practice in most situations
C	Body of evidence provides some support for recommendation(s) but care should be taken in its application
D	Body of evidence is weak and recommendation must be applied with caution

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

- Skin cancer
- Cervical cancer
- Breast cancer
- Ovarian cancer
- Oral cancer
- Colorectal (bowel) cancer
- Testicular cancer
- Prostate cancer

Guideline Category

Counseling

Diagnosis

Prevention

Risk Assessment

Screening

Clinical Specialty

Dentistry

Dermatology

Family Practice

Gastroenterology

Geriatrics

Internal Medicine

Obstetrics and Gynecology

Oncology

Pediatrics

Preventive Medicine

Urology

Intended Users

Advanced Practice Nurses

Dentists

Health Care Providers

Nurses

Physician Assistants

Physicians

Public Health Departments

Guideline Objective(s)

- To facilitate evidence-based preventive activities for early detection of cancers in primary care
- To provide a comprehensive and concise set of recommendations for patients in general practice with additional information about tailoring risk and need
- To provide the evidence base for which primary healthcare resources can be used efficiently and effectively while providing a rational basis to ensure the best use of time and resources in general practice

Target Population

- General population living in Australia:
  - *Skin cancer*: All people from birth to ≥80 years
  - *Cervical cancer*: Women aged 18 to 70 years
  - *Breast cancer*: Women aged 50 to 69 years (age of starting screening varies in higher risk groups, i.e., at age 40 years or younger)
  - *Colorectal cancer*: All people aged 50 to 75 years who are at average or slightly increased risk of colorectal cancer (age of starting screening varies in high-risk groups: age 25 years for those with Lynch syndrome or 5 years earlier than the earliest age of onset in the family)
- Individuals at high risk for specific cancers

Interventions and Practices Considered

1. Skin cancer
   - Assessment of risk for melanocytic and non-melanocytic skin cancer (NMSC)
   - Screening of high risk groups
   - Advice on sun protection and prevention

- Skin examination, including photography in higher risk groups
- Advice on self-examination of skin, including self-photography
- Excision biopsy or referral

2. Cervical cancer
    - Assessment of risk for cervical cancer
    - Pap test screening
    - Human papillomavirus (HPV) vaccination
    - HPV testing
    - Referral for colposcopic assessment and targeted biopsy where indicated
    - Liquid-based cytology
3. Breast cancer
    - Assessment of risk for breast cancer
    - Mammogram
    - Breast awareness
    - Clinical breast examination (not recommended because of insufficient evidence)
    - Referral to or consultation with a family cancer clinic
    - Genetic testing
    - Ongoing surveillance strategies in high-risk groups (e.g., clinical breast examination, breast imaging with mammography, magnetic resonance imaging [MRI], or ultrasound)
4. Ovarian cancer
    - Assessment of risk for ovarian cancer
    - Consideration of increased frequency of screening for breast and colorectal cancer in higher risk women
5. Oral cancer
    - Assessment of risk for oral cancer
    - Education regarding prevention of oral cancer
    - Opportunistic examination of mouth and lips in high-risk groups (e.g., smokers, heavy drinkers)
6. Colorectal cancer (CRC)
    - Assessment of risk for colorectal cancer
    - Screening by faecal occult blood test (FOBT) (guaiac and faecal immunochemical tests)
    - Colonoscopy
    - Sigmoidoscopy plus double-contrast barium enema
    - Computed tomography (CT) colonography
    - Referral for genetic screening of affected relatives in high-risk populations
    - Referral to bowel cancer specialist to plan appropriate surveillance in high-risk populations
7. Testicular cancer
    - Assessment of risk for testicular cancer
    - Opportunistic testicular examination in high-risk groups
8. Prostate cancer
    - Assessment of risk for prostate cancer
    - Prostate-specific antigen (PSA) screening (on demand or in high-risk populations)

Major Outcomes Considered

- Cancer risk
- Effectiveness of interventions in preventing cancer
- Mortality due to cancer
- Survival benefits of routine screening for cancer
- Rate of false-positive and false-negative results

Methodology

Methods Used to Collect/Select the Evidence

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Sources of Recommendations

The recommendations in these guidelines are based on current, evidence-based guidelines for preventive activities. The Taskforce focused on those most relevant to Australian general practice. Usually this means that the recommendations are based on Australian guidelines such as those endorsed by the National Health and Medical Research Council (NHMRC).

In cases where these are not available or recent, other Australian sources have been used, such as guidelines from the Heart Foundation, Canadian or United States preventive guidelines, or the results of systematic reviews. References to support these recommendations are listed. However, particular references may relate to only part of the recommendation (e.g., only relating to one of the high-risk groups listed) and other references in the section may have been considered in formulating the overall recommendation.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Levels of Evidence

Level	Explanation
I	Evidence obtained from a systematic review of level II studies
II	Evidence obtained from a randomised controlled trial (RCT)
III–1	Evidence obtained from a pseudo-randomised controlled trial (i.e., alternate allocation or some other method)
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IV	Case series with either post-test or pre-test/post-test outcomes
Practice Point	Opinions of respected authorities, based on clinical experience, descriptive studies or reports of expert committees

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review

Description of the Methods Used to Analyze the Evidence

Not stated

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

These *Guidelines for preventive activities in general practice*, 8th edition, have been developed by a taskforce of general practitioners (GPs) and experts to ensure that the content is the most valuable and useful for GPs and their teams. The guidelines provide an easy, practical and succinct resource. The content broadly conforms to the highest evidence-based standards according to the principles underlying the Appraisal of Guidelines Research and Evaluation.

The dimensions addressed are:

- Scope and purpose
- Clarity of presentation
- Rigour of development
- Stakeholder involvement
- Applicability
- Editorial independence

The Red Book maintains developmental rigour, editorial independence, relevance and applicability to general practice.

Screening Principles

The World Health Organization (WHO) has produced guidelines for the effectiveness of screening programs. The Taskforce has kept these and the United Kingdom National Health Services' guidelines in mind in the development of recommendations about screening and preventive care.

Rating Scheme for the Strength of the Recommendations

Grades of Recommendations

Grade	Explanation
A	Body of evidence can be trusted to guide practice
B	Body of evidence can be trusted to guide practice in most situations
C	Body of evidence provides some support for recommendation(s) but care should be taken in its application
D	Body of evidence is weak and recommendation must be applied with caution

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

Peer Review

Description of Method of Guideline Validation

Not stated

Evidence Supporting the Recommendations

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Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for selected recommendations (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Reduction of deaths from cancer through early detection

Potential Harms

- For all women there is a chance that mammography will either miss breast cancer (false negative) or detect a change not caused by breast cancer (false positive). The chance of a false negative or false positive result is higher in younger women because their breast tissue is denser, making it more difficult to detect changes.
- Both suicide and cardiovascular disease increase enormously (8 and 11 times more, respectively) in the week after men are given their diagnosis of prostate cancer. Even diagnostic procedures following positive screening are harmful, with Australian data showing that the risk of life-threatening sepsis needing intensive care admission is not uncommon after biopsy.

Qualifying Statements

Qualifying Statements

- The information set out in this publication is current at the date of first publication and is intended for use as a guide of a general nature only and may or may not be relevant to particular patients or circumstances. Nor is this publication exhaustive of the subject matter. Persons implementing any recommendations contained in this publication must exercise their own independent skill or judgement or seek appropriate professional advice relevant to their own particular circumstances when so doing. Compliance with any recommendations cannot of itself guarantee discharge of the duty of care owed to patients and others coming into contact with the health professional and the premises from which the health professional operates.
- Whilst the text is directed to health professionals possessing appropriate qualifications and skills in ascertaining and discharging their professional (including legal) duties, it is not to be regarded as clinical advice and, in particular, is no substitute for a full examination and consideration of medical history in reaching a diagnosis and treatment based on accepted clinical practices.
- Accordingly, The Royal Australian College of General Practitioners and its employees and agents shall have no liability (including without limitation liability by reason of negligence) to any users of the information contained in this publication for any loss or damage (consequential or otherwise), cost or expense incurred or arising by reason of any person using or relying on the information contained in this publication and whether caused by reason of any error, negligent act, omission or misrepresentation in the information.
- These guidelines have not included detailed information on the management of risk factors or early disease (e.g., what medications to use in treating hypertension). Similarly, they have not made recommendations about tertiary prevention (preventing complications in those with

established disease). Also, information about prevention of infectious diseases has been limited largely to immunisation and some sexually transmitted infections (STIs).

Implementation of the Guideline

Description of Implementation Strategy

For preventive care to be most effective, it needs to be planned, implemented and evaluated. Planning and engaging in preventive health is increasingly expected by patients. The Royal Australian College of General Practitioners (RACGP) thus provides the Red Book and *National guide to inform evidence-based guidelines*, and the Green Book (see the "Availability of Companion Documents" field) to assist in development of programs of implementation. The RACGP is planning to introduce a small set of voluntary clinical indicators to enable practices to monitor their preventive activities.

Implementation Tools

Chart Documentation/Checklists/Forms

Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

Early detection of cancers. In: Guidelines for preventive activities in general practice, 8th edition. East Melbourne (Australia): Royal Australian College of General Practitioners; 2012. p. 60-72.

Adaptation

This guideline has been partially adapted from Australian, Canadian, United Kingdom, and/or United States preventive guidelines.

Date Released

2012

Guideline Developer(s)

Royal Australian College of General Practitioners - Professional Association

Source(s) of Funding

Royal Australian College of General Practitioners

Guideline Committee

Red Book Taskforce

Composition of Group That Authored the Guideline

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Financial Disclosures/Conflicts of Interest

Not stated

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available in Portable Document Format (PDF) from the Royal Australian College of General Practitioners (RACGP) Web site .

Availability of Companion Documents

The following are available:

- Preventive activities over the lifecycle – adults. Preventive activities over the lifecycle – children. Electronic copies: Available in Portable Document Format (PDF) from the Royal Australian College of General Practitioners (RACGP) Web site .
- Putting prevention into practice (green book). East Melbourne (Australia): Royal Australian College of General Practitioners; 2006. 104 p. Electronic copies: Available in PDF from the RACGP Web site .
- National guide to a preventive health assessment for Aboriginal and Torres Strait Islander people. East Melbourne (Australia): Royal Australian College of General Practitioners; 2012. 100 p. Electronic copies: Available in PDF from the RACGP Web site .

Patient Resources

None available

NGC Status

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